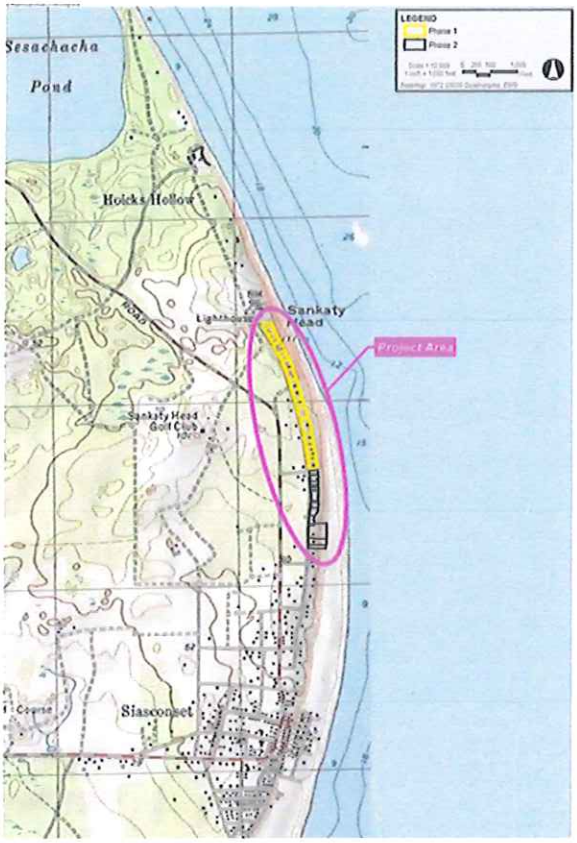
Rec. @ meeting
by D. Anne Atherton

Notice of Intent

(M.G.L. c. 131, §40) and Town of Nantucket Wetlands Bylaw Chapter 136

BAXTER ROAD AND SCONSET BLUFF STORM DAMAGE PREVENTION PROJECT



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2.0 Alternatives for Road and Bluff Protection

This section provides a summary description of ten alternatives for preventing erosion of the coastal bank at Sconset.

2.1 Geotextile Tubes

Geotextile tubes (geotubes) are fabricated from high strength, woven polyester or polypropylene sewn together into a tube shape and filled with sand. A conceptual geotube design for a 50-year storm would consist of at least four 30-foot-circumference geotextile tubes installed in a terraced alignment and covered with clean sand fill. Construction would require excavating the existing profile to +4.5 feet MLW and installing a 3-foot-circumference anchor tube and scour apron. Geotubes would then be installed and filled on the excavated terraces to approximately 5 feet tall and 11 feet wide. After the geotubes were filled, a clean sand fill would be placed to a top elevation of approximately +23.5 feet MLW. The sand fill would be placed on a 1 vertical: 2.5 horizontal slope to meet existing grade while maintaining a continuous one foot thick sand cover over the filled tubes.

Geotextile tubes are not well-suited to a high energy environment like Sconset. Too much scour at the toe could potentially lead to structural failure (even when a scour apron is included in the design). Geotubes are susceptible to damage from vandalism, debris, and storm waves; storm-driven debris may puncture and tear the tube. For this reason, maintenance costs for geotubes tend to be higher than for other alternatives. When ripped open by storm waves, geotextile tubes may fail in place, emptying sand onto the beach and possibly releasing geotextile material to the coastal environment. The release of sacrificial sand would not have any adverse environmental effects since clean, beach-compatible sand would be used to fill the tubes. However, replacement of the geotube would be expected to be required on a frequent basis (one or more times annually). Such replacement often cannot be accomplished between successive storms, potentially leaving the bank vulnerable to wave-induced scarping at the toe (and subsequent slumping of the upper bank, which undermines vegetative stabilization that otherwise works) at the time when protection is most needed. For these reasons, geotubes are not considered a viable long-term erosion control solution.

2.2 Beach Nourishment

Beach nourishment would involve the placement of approximately 2.6 million cubic yards of sand on Sconset Beach. The nourished beach would be approximately 200 feet wide with a berm height of 12-16 feet above MLW. Sand would be obtained from an offshore borrow site; a likely candidate would be the offshore shoal system known as Bass Rip, though other potential sites could also be evaluated. The wider beach would absorb and dissipate wave energy, thereby increasing protection to infrastructure and property threatened by erosion and storm damage. Additionally, the wider beach would potentially